

REMARKS

Applicant thanks the Examiner for carefully considering this application. Please reconsider the application in view of the following remarks.

Disposition of the Claims

Claims 1-8 were pending. Claims 2, 6 and 7 are cancelled. Claims 1, 3-5 and 8 are pending in the current application.

35 U.S.C. § 112 rejections

Claims 1, 4, 6 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particular point out and distinctly claim the subject matter which applicant regards as the invention.

In response to this rejection, claims 1 and 4 have been amended, and claim 6 has been canceled. In claim 1, “the movement direction” has been changed to “a movement direction”, “the position” has been changed to “a position”, “the axial direction” has been changed to “an axial direction”, and “the positive and negative electrode-pins” has been changed to “the electrode-pins”. In claim 4, the term “IGBT” has been changed to “IGBT (Insulated Gate Bipolar Transistor)”. Regarding claim 8, “the default interval” refers to “a default interval” in claim 1. Therefore, withdrawal of this rejection is respectfully requested.

35 U.S.C. § 103 rejections

Claims 1, 3, 5 and 8

Claims 1, 3, 5, and 8 are rejected under 35 U.S.C 103 (a) as being unpatentable over Lindemann et al. (US Pat No. 5,012,825) in view of Hollinetz (US Pat No. 4,501,953) and further in view of Schmidt-Kufeke et al. (US Pat No. 4,278,871). For reasons set forth below, this rejection is respectfully traversed.

Claim 1 of the present invention is directed to a punch device for a substrate having a large breadth and small thickness. Specifically, claim 1 recites:

The punching mechanism comprises at least two or more electrode matrixes, each electrode matrix is made up of N sets of electrode bars longitudinally arrayed which form an angle with a movement direction of the substrate, the angle is changeable by adjusting a position of either end of the electrode bars. Each pair of the electrode bars comprises an upper bar and a lower bar, and each pair of the electrode bars comprises an anode bar and a cathode bar on either side of the substrate. Each bar is provided with M electrode-pins, and the electrode-pins provided on the respective upper bar and the respective lower bar are aligned with each other, with $1 \leq N \leq 100$ and $1 \leq M \leq 50$. The movement direction of the substrate crossing the electrode matrixes is vertically downward or upward and an axial direction of the electrode-pins is horizontal. The electrode elevating mechanism comprises a control computer and a hydraulic control system. The control computer simultaneously controls alignment of each pair of the electrode-pins and keeps a default interval between the electrode-pins of each pair of the electrode-pins by utilizing the hydraulic control system.

Lindemann discloses an apparatus for electrically perforating a running web of wrapping material (such as cigarette paper or tipping paper) for smokers' products.

Lindemann, however, fails to disclose all the limitations recited in claim 1. In the Final Office Action, the Examiner stated:

Lindemann et al. disclose the punch device comprises an electrode elevating mechanism (Col. 8, lines 48-52).

The applicant respectfully disagrees with the Examiner's assertion. Lindemann states that "the circuits of the electrodes that are shown schematically by rows and connected in series ensures that sparks which are generated by the electrodes traverse the path for the web 13 in a direction from an electrode 52a or 52b on the holder 37b, thereupon from an electrode 53a or 53b toward the aligned electrode 52a or 52b and so forth" (Col. 8, lines 48-52). However, Lindemann does not disclose and/or teach the punch devide comprises "an electrode elevating mechanism" recited in claim 1 of the present patent application.

In the Final Office Action, the Examiner stated:

the electrode elevating mechanism comprises a control computer 76 (fig. 5) and a hydraulic control system (Col. 8, line 8-37), the computer simultaneously controls alignment of each pair of the electrode-pins and keeps a default interval between the electrode-pins of each pair of electrode-pins by utilizing the hydraulic control system (Col. 8, lines 8-37).

The applicant respectfully disagrees with the Examiner's assertion. Lindemann discloses a construction of means for supporting and moving the brushes 42a, 42b of the cleaning

device 41a for the electrodes (Col. 8, lines 8-37). However, Lindemann does not disclose and/or teach “the electrode elevating mechanism comprises a control computer and a hydraulic control system, the control computer simultaneously controls alignment of each pair of the electrode-pins and keeps a default interval between the electrode-pins of each pair of the electrode-pins by utilizing the hydraulic control system” recited in claim 1 of the present patent application.

Further, the Examiner stated in the Final Office Action that Lindemann fails to show the angle is changeable by adjusting a position of either end of the electrode bars.

Even if one assumes Lindemann does not teach away from the present invention and can be used as a prior art reference, the combination of Lindemann and Hollinetz still fails to teach or suggest all the limitations of claim 1 of the present patent application as shown below.

Hollinetz is directed to a method and apparatus for controlling apparatus for perforating strips of paper by disruptive spark discharges. In the Final Office Action, the Examiner stated:

Hollinetz teaches the angle is changeable by adjusting the position of either end of the electrode bars (Col. 2, line 48-57).

The applicant respectfully disagrees with the Examiner’s assertion. Hollinetz discloses that:

These electrodes are carried by electrode holders 5, which may be designed as described in Austrian Patent Specification No. 364,637 so that they can be adjusted to extend at a desired angle to the direction of movement of the strip 1. As a result, the mutually opposite rows of electrodes 4 extend at the same angle to the direction of movement of the strip 1. That angle will determine the

spacing of the rows of perforations formed by the mutually opposite electrodes (Hollinetz; Col. 2, line 48-57).

The applicant submits that Hollinetz discloses that the electrode holders can be adjusted to extend at a desired angle to the direction of movement of the strip. However, Hollinetz does not disclose and/or teach “the angle is changeable by adjusting a position of either end of the electrode bars” recited in claim 1 of the present patent application.

Schmidt-Kufeke is directed to arrangement for effecting the superfine perforation of film-like sheeting with the aid of high-voltage pulses. Obviously, Schmidt-Kufeke falls to disclose and/or teach the limitations recited in claim 1 which are not disclosed by a combination of Lindemann et al. and Hollinetz.

Therefore, a combination of Lindemann, Hollinetz and Schmidt-Kufeke does not teach or suggest all the limitations of claim 1 and cannot render claim 1 obvious. Therefore, claim 1 is patentable over Lindemann in view of Hollinetz and further in view of Schmidt-Kufeke. Dependent claims 3, 5 and 8 should also be allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 4

Claim 4 is rejected under 35 U.S.C 103 (a) as being unpatentable over Lindemann (US Pat No. 5,012,825) in view of Schenetzka (US Pat No. 5,898,554). For reasons set forth below, this rejection is respectfully traversed.

A combination of Lindemann, Hollinetz and Schmidt-Kufeke does not teach or suggest all the features of claim 1. Therefore claim 4 is patentable over Lindemann in view of Schenetzka. Withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance.

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Respectfully submitted,

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